



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,472	02/08/2002	Attilio Rimoldi	005826.P002	9971
8791 7590 09/25/2007 BLAKELY SOKOLOFF TAYLOR & ZAFMAN 1279 OAKMEAD PARKWAY SUNNYVALE, CA 94085-4040			EXAMINER JONES, HUGH M	
			ART UNIT 2128	PAPER NUMBER
			MAIL DATE 09/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/071,472	Applicant(s) RIMOLDI ET AL.	
	Examiner Hugh Jones	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/8/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-30 of U. S. Application 10/071,472, filed 02/08/2002, are pending.

Applicants are thanked for the amendment and arguments.

Claim Rejections - 35 USC § 101

2. **Claims 1-14 are rejected under 35 U.S.C. 101 as being directed to nonstatutory subject matter since the claims as a whole do not provide for a practical application, as evidenced by lack of physical transformation or a useful, tangible, and concrete result:**

- Claims 1-14: the claims as a whole are *abstract* and do not provide for a specific and substantial result.
- Claims 15-30 are directed to hardware per se and are therefore statutory.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

4. A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-30 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Shih et al. (Applicant's IDS).**

6. Shih et al. disclose parametric modeling including linkages between part volume and functionality. See fig. 1, 4; "Constraint module", "parametric module".

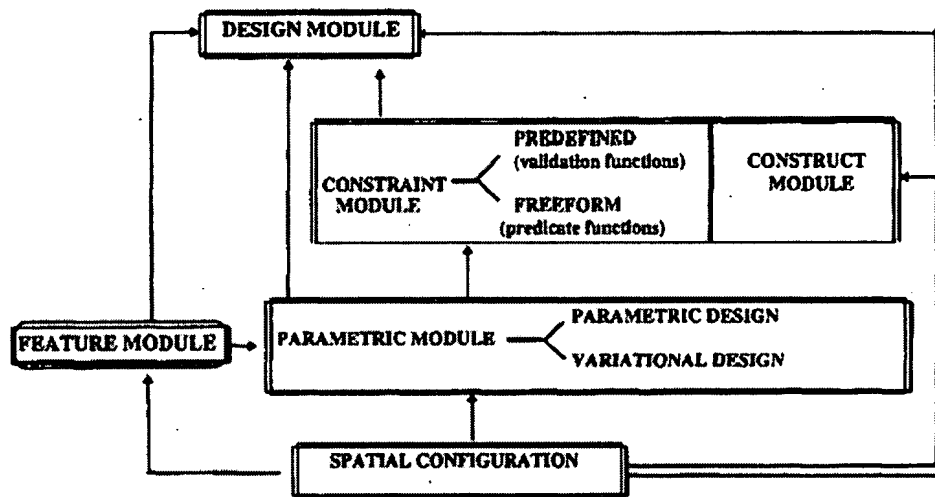


Figure 1: EDM high level architecture

Parametric Module contains entity types that represent the various 'ways' the user inputs the 'parameters' and chooses the operations. Hence, it uses the individual design types and constraints defined in the Design Module (they are like

the token or coins we drop into the machine) and Constraint Module (they are like the different choices) as its basic structure. The Parametric Module and its relations with other modules can be depicted by the following diagram:

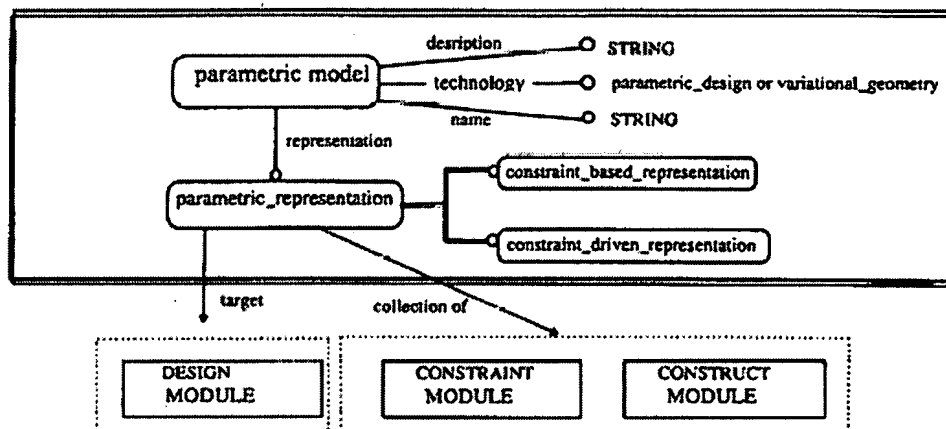


Figure 4: Architecture of Parametric Module

Based on Solver characteristics:

1. **Parametric Design :** Stands for the type of solver which requires an explicit order for the constraints/conditions to compute the solution stepwise. Such technology can be viewed as showing HOW. The process is represented by a list (i.e. ordered) of (design, constrain) pair or a list of construct entity types. Recall that a construct entity type is an entity type with built-in constraints.

design elements and operator is a choice of constraint as defined in the Constraint module or the Construct module.

4. TECHNOLOGY APPLICATION

4.1 Demonstration

A work-in-process demonstration was conducted for the PDES, Inc. Technical Advisory Committee which showed exchange of some geometric constraints (parallel,

Response to Arguments

7. Applicant's arguments, filed 9/6/2007, have been carefully considered and are not persuasive.

8. The 101 rejections based upon "transmission media" are withdrawn in view of the clear distinction between *physical storage* and *transmission media*.

Please amend paragraph [0025] on page 9 as follows:

A machine-readable medium includes any mechanism for storing or transmitting information in a form readable by a machine (e.g., a computer). For example, a machine-readable medium includes a machine readable storage medium (e.g., read only memory ("ROM"); random access memory ("RAM"); magnetic disk storage media; optical storage media; flash memory devices; etc.), a machine readable transmission medium (e.g., electrical, optical, acoustical or other form of propagated signals (e.g., carrier waves, infrared signals, digital signals, etc.); etc.), etc.

Note, for future reference, that a 112 enablement rejection would be applied against amended claims directed to "machine readable transmission medium".

Claims 15-30 are statutory because they are directed to hardware per se.

9. The 101 rejections against claims 1-14 are maintained. Claims 1-14 are rejected under 35 U.S.C. 101 as being directed to nonstatutory subject matter since the claims as a whole do not provide for a practical application, as evidenced by lack of physical transformation or a useful and tangible *result*. Claims 1-14, as a whole, are abstract and do not provide for a *specific* and *substantial* result. Merely designing and modeling of a generic design does not provide for a specific and substantial result.

10. Applicants argue:

Contrary to the presently claimed invention, Shih does not teach or suggest determining,

based on behavioral parameters associated with each design feature of an object, a correspondence between each design feature and one or more body partitions, assigning a contributing volume to each of these body partitions, and computing the digital model of the object using contributing volumes of each design feature of the object. The above features are included in the following language of claim 1:

... determining, based on the behavioral parameters, a correspondence between each design feature and one or more body partitions within a predefined set of body partitions composing a body of the object;
assigning a contributing volume to each of the one or more body partitions; and
computing the digital model of the object using contributing volumes of each design feature of the object to create the digital model of the object.

Similar language is also included in claims 15, 29 and 30. Accordingly, the present invention, as claimed in claims 1, 15, 29 and 30, and their corresponding dependent claims, is not anticipated by Shih.

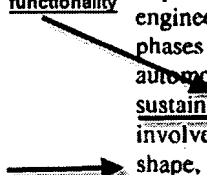
11. The specification defines "behavioral parameter" as (pg. 13):

parameters for various design features. The design features may include a pocket, a cutout, a rib, a boss, a box, a hole, etc. The behavioral parameters define the functionality of design features. For example, a behavioral parameter may pertain to the shellability of a box or the thickness of a pocket's wall. In one embodiment, behavioral parameters of design features are defined based on the rules and logic of a specific application in which these design features are used.

12. Section 2.1 of Shih discloses "functionality":

For the sake of this discussion, a specification stands for a requirement at the higher conceptual design, while a constraint stands for a requirement or a condition at the detailed design level, using one or more mathematical equations. A specification is usually broken into many low level constraints through a sequence of design activities. Thus, for a design to satisfy even a single specification it may require the validation of many mathematical equations, engineering equations, or logical conditions at different phases of the design cycle. For example, suppose there is an automobile design specification to have a seat belt that can sustain a certain impact force. Meeting that specification involves many low level detailed design requirements in shape, assembly, and material. For each aspect, there may be

functionality



13. Module is defined as (section 1.2 which explains fig. 1, cited in the rejection):

Module: a subset of a model containing types that are grouped together based on some commonality such as common characteristics or functionality. Structurally, there is no distinction between a 'model' and a 'module', the difference lies in their scopes and relative domains. We use 'module' when the collection is intended to support a part rather than the whole for the discourse of interest, where 'model' is to stand for the universe of an application. For example, in ISO 10303-203 [5] advanced boundary representation solids may be considered a module. Thus, module is a relative term.

Each model may include more than one module, each of which has a volume and a corresponding assigned functionality. The "determining a correspondence" based upon a *functionality* depends upon the design. Constraints or design intent may define the "predefined set of body partitions". For example, the body could be a soldering iron. By design intent, the total body volume and the relative volumes assigned to the heating tip and the insulated handle may be defined, prior to modeling. The associated functionalities associated with the two predefined body partitions may, for example, be the ability to conduct heat (for the tip) and the ability to insulate against heat (the handle). Thus, assignment of behavioral parameters to partitioned volumes is disclosed in Shih.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2128

15. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be:

directed to: Dr. Hugh Jones telephone number (571) 272-3781,

Monday-Thursday 0830 to 0700 ET,

or

the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

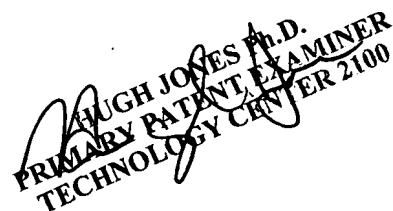
(703) 308-9051 (for formal communications intended for entry)

or (703) 308-1396 (for informal or draft communications, please label *PROPOSED* or *DRAFT*).

Dr. Hugh Jones

Primary Patent Examiner

September 13, 2007


HUGH JONES Ph.D.
PRIMARY PATENT EXAMINER
TECHNOLOGY CENTER 2100